18

CLAIMS

1. Method for measuring the polarisation mode dispersion of
an optical fibre applying an optical signal to a first end
of the fibre (11) and coupling a second end of the fibre
5 (111) to an interferometer (25), said method comprising the
step of:
- generating by means of said interferometer (25) at least
one interferogram comprising at least a central peak and
two side lobes having a determined information content;
10 and being characterised by the steps of
- processing said interferogram in such a way as to measure
the information content of at least one of said two side
lobes;
and
15 - determining the polarisation mode dispersion of the fibre
associating to said measurement of said information content
a probability density function representative of the
polarisation mode dispersion (PMD) of the fibre in the form
of differential group delay.

20 2. Method as claimed in claim 1 characterised in that said
step of determining the polarisation mode dispersion
comprises the step of
- computing the deconvolution of said at least one side
lobe with said central peak so that said deconvolution
25 corresponds to the probability density of the differential
group delay determined by the PMD of the fibre.

3. Method as claimed in claim 1 or 2 characterised by the
additional step of
- determining an average of measurements of said
30 information content whereto said probability density is to
be associated.

4. Method as claimed in any of the previous claims,
characterised in that said information content comprises a

single numeric value determined by the position of said at
least one side lobe in the interferogram.

5. Method as claimed in claims 1 through 3 characterised in
that said information content comprises a plurality of
5 values determined by the position of said at least one side
lobe in the interferogram.

6. Computer product able to be directly loaded in the
internal memory of an electronic measuring device and
comprising portions of software code to implement the
10 method as claimed in any of the claims from 1 to 5 when the
product is run on said electronic device.

7. System for measuring the polarisation mode dispersion of
an optical fibre, comprising
- an optical source (21) able to generate an optical signal
15 to be injected into the fibre (11);
- an interferometer (25) associated to the fibre and able
to generate an interferogram comprising at least a central
peak and two side lobes having a determined information
content;
20 characterised by
- a device (27) connected to said interferometer and able
to
    - process said interferogram in such a way as to
    measure the information content of at least one of said
25   side lobes; and
    - determining the polarisation mode dispersion of the
    fibre associating to said measurement of said
    information content a probability density function
    representative of the polarisation mode dispersion
30   (PMD) of the fibre in the form of differential group
    delay.

8. System as claimed in claim 7, characterised in that said
device (27) comprises

20

- a first module able to compute the deconvolution of said
at least one side lobe with said central peak so that said
deconvolution corresponds to the probability density of the
differential group delay determined by the PMD of the
5   fibre.

9. System as claimed in claim 7 or 8, characterised in that
said device comprises

- a second module able to determine an average of
measurements of said information content whereto said
10 probability density is to be associated.

10. Device for measuring the polarisation mode dispersion
of an optical fibre into which optical signals have been
injected, comprising

- an opto-electronic module (37) able to convert the
15 optical signals into electrical signals;

- a display device (35) able to generate an interferogram
comprising at least a central peak and two side lobes
having a determined information content; characterised by

- a control unit (30) able to

20   - measure the information content of at least one of
          said two side lobes; and

          - determining the polarisation mode dispersion of the
          fibre associating to said measurement of said
          information content a probability density function
25   representative of the polarisation mode dispersion
          (PMD) of the fibre in the form of differential group
          delay.

11. Device as claimed in claim 10, characterised in that it
comprises

30 - a first program module able to compute the deconvolution
of said at least a side lobe with said central peak so that
said deconvolution corresponds to the probability density

21

of the differential group delay determined by the PMD of the fibre.

12. Device as claimed in claim 10 or 11, characterised in that it comprises

5 - a second program module able to determine an average of measurements of said information content whereto said probability density is to be associated.